527 CMR 2.00 THE MANUFACTURING, STORAGE, TRANSPORTATION AND USE OF FIREWORKS

Section

2.01: Purpose and Scope

(1) The purpose of 527 CMR 2.00 is to provide minimum standards for the safe use of fireworks and special effects by competent operators, and the keeping, manufacturing, storage and intrastate transport of fireworks and pyrotechnic materials.

(2) 527 CMR 2.00 shall apply to supervised displays of fireworks; theatrical special effects, special effects before a proximate audience; the keeping, storage, manufacture, and intrastate transport of fireworks; permitting of fireworks displays; use of special effects; certificates of competency to conduct supervised fireworks displays or special effects; fireworks classified in accordance with the U.S. Department of Transportation (DOT) 49 Code of Federal Regulations (CFR) 173; display fireworks, also known as “1.3G” and “1.4G”; any combustible or explosive composition or substance, or any combination of the same, or any other article which was prepared for the purpose of producing a visible or audible effect by combustion, explosion, deflagration or detonation.

(3) 527 CMR 2.00 shall not apply to the following:
- (a) Explosives regulated by 527 CMR 13.00,
- (b) Model Rocketry regulated by 527 CMR 16.00,
- (c) Cannon or Mortar Firing regulated by 527 CMR 22.00 ,
- (d) Any of the items expressly prohibited or allowed under M.G.L c. 148, § 39,
- (e) Interstate transportation of fireworks.

2.02: NFPA Standards No.1123, 1124, and 1126 Incorporated by Reference

(1) For the purposes of 527 CMR 2.00 the provisions of NFPA Standards No. 1123, 1995 Edition.; No. 1124, 1995 Edition.; No. 1126, 1996 Edition., are hereby incorporated by reference with the following exceptions:
- (a) Where any conflict occurs between the standards adopted and 527 CMR 2.00, 527 CMR 2.00 shall prevail.
- (b) The following sections of the NFPA 1123 shall not apply:
  1. 5-2.2, - *until 5/1/2000*
  2. 6-1.
- (c) The following sections of NFPA 1126 shall not apply
  1. 4-2.1,
  2. 4-5.

2.03: Definitions

As used in 527 CMR 2.00, the following definitions shall have the meanings respectively assigned to them:

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Aerial Shell. Usually a cylindrical or spherical cartridge containing pyrotechnic material, a long fuse or electrical match wires, and a black powder lift charge. The shells are most commonly three inches (76 mm) to six inches (152mm) outside diameter and are fired from mortars. Upon firing of the shell, the fuse and lift charge are consumed

Airburst. An effect intended to be suspended in the air to simulate outdoor aerial fireworks shells without hazardous debris.

Approved. Approved by the State Fire Marshal.

Assistant. A person who works under the direction of the operator to put on an outdoor fireworks display. The duties of an assistant include tasks such as loading mortars, spotting the bursting location of aerial shells, tending a ready box, the firing of shells both manually and electrically, setting up and cleaning the discharge site.

Audience. Those spectators whose primary purpose is to view a fireworks display.

Authority Having Jurisdiction. The Marshal or head of the fire department.

Barrage. A rapidly fired sequence of aerial fireworks, mortars are loaded prior to the display, and the aerial shells are chain fused to fire in rapid sequence.

Barge. A flat bottomed boat, ship, or vessel used for the bulk transportation of freight or commodities.

Barrier. Material of substantial strength, uniformly supported and providing an uninterrupted barrier both vertically and horizontally and of a height of no less than 40 inches. Such barrier shall clearly define the restricted discharge area behind which the audience shall be located.

Battery. A collection of fireworks devices, such as a group of mortars (finale battery) or a bundle of Roman candles (candle battery), fused together in such a manner that they are fired within a short period of time. This term is not to be confused with an electrical battery used to provide a source of current.

Black Powder. A deflagrating or low explosive compound of an intimate mixture of sulfur, charcoal, and alkali nitrate, usually potassium or sodium nitrate.

Black Match. A fuse made from string that is impregnated with black powder and used for igniting pyrotechnic devices.

Board. The Board of Fire Prevention Regulations established under M.G.L. c. 22, § 14.

Break. An individual burst from an aerial shell, generally either producing a visual effect (stars) or noise (salute). Aerial shells can be either single-break (having only one burst) or multi-break (having two or more bursts).

Certificate of Competency (Fireworks Display). A license granted by the Marshal to an individual which allows this person to be in charge of and responsible for the loading and firing of a Supervised Fireworks Display or Special Effects.

CFR. Code of Federal Regulations.

Chain Fusing. A series of two or more aerial shells fused to fire in sequence from a single ignition. Finales and barrages typically are chain fused.

2.03: continued

Comet. A fireworks device consisting of a pellet of pyrotechnic composition that is ignited and propelled from a mortar tube by a charge of black powder. Comets frequently leave a trail of sparks or fire as they rise in the air, and they sometimes burst into smaller fragments at their zenith.

Competent Operator. The person holding a Certificate of Competency and named on the Permit to Display Fireworks with overall responsibility for the safety, set up, and discharge of an outdoor fireworks display or special effects before a proximate audience.

Discharge Site. The area immediately surrounding the fireworks mortars used for an outdoor fireworks display. For the purposes of 527 CMR 2.00 the discharge site is the direct and proximate location where fireworks are setup, loaded and located for the purpose of conducting a fireworks display. Distances for determining proper placement of launch mortars and shells shall be in accordance with Table 2.08-1.

Display Site. The immediate area where a fireworks display is conducted. This includes the discharge site, the fallout area, and the required separation distance from mortars to spectator viewing areas, vehicle parking areas, and the nearest building.

Dense Pack Portable Firing Trailer (PFT). A trailer with single shot mortars that are securely braced with a metal framework for firing aerial shells electrically, as apprved by the Marshal.

DOT. United States Department of Transportation.

Electrical Firing Unit. A device that provides and controls the electric current used to ignite fireworks during an outdoor display. A firing unit normally has switches to control the routing of the current to the devices to be used during the display and also might contain test circuits and warning indicators. Units can be manual, automatic, or hand-held. All electrical firing units shall be approved by the marshal except for hand held units.

(a) Automatic Electrical Firing Unit. A panel or box that operates automatically to provide the source of electrical current used to ignite electric matches. The unit is attached by wires or cables to junctions that are connected to the electric matches, which, in turn, are attached to fireworks devices. Automatic units often are operated by magnetic tape or by computer.

(b) Hand-Held Electrical firing Unit. A small, hand-held unit with manually operated switches that control the flow of electrical current to electric matches attached to fireworks devices. The unit is connected directly to the electric matches by means of wires.

(c) Manual Electrical Firing Unit. A panel or box with manually operated switches that control the flow of electric current to electric matches attached to fireworks devices. The unit contains wires or cables that are attached to junctions that are, in turn, connected to the electric matches.

Electrical Ignition. A technique used to ignite fireworks using a source of electric current. Typically, electric matches are attached to or inserted into fireworks devices prior to the display and are connected to wires leading back to an electrical firing unit. During the display, the operator controls the ignition of the fireworks using the electrical firing unit.

(a) Electric Match. A device consisting of wires terminating at a relatively high-resistance element surrounded by a small quantity of heat-sensitive pyrotechnic composition. When a sufficient electrical current is passed through the wire circuit, the heat that is generated ignites the pyrotechnic composition, producing a small burst of flame. This flame can be used to ignite a fuse or a lift charge in a fireworks device. For the purposes of 527 CMR 2.00, the term electric match also refers to other similar technologies in which an electrical current is used to produce a high temperature for ignition purposes.

(b) Electric Squibs. Small tubes or blocks containing a small quantity of ignition compound in contact with a wire bridge.

Explosive. As defined by 527 CMR 13.00.

Explosive Material. As defined by 527 CMR 13.00.

2.03: continued

Explosive Composition. Any Chemical compound or mixture the primary or common purpose of which is to function by explosion.

Fallout Area. The area in which any hazardous debris falls after a pyrotechnic device is fired. The fallout area is established by the fallout radius.

Fallout Radius. A line that defines the fallout area of a pyrotechnic device. It is defined by two points. The first point is the center of a pyrotechnic device. The second point is the point most distant from the center of the pyrotechnic device at which any hazardous debris from the device can fall.

Finale. A rapidly fired sequence (barrage) of aerial fireworks, typically fired at the end of a display. The mortars are loaded prior to the display, and the aerial shells are chain fused to fire in rapid sequence.

Fire (v.). To ignite pyrotechnic materials by using a match, electrical current, or some other means.

Fireworks. Any material, composition or device for the purposes of producing a visible or an audible effect for entertainment purposes by combustion, deflagration, or detonation that meets the definition of "Consumer Fireworks" or "Display Fireworks as set forth in 527 CMR 2.00.

Exception No. 1: Model rockets and model rocket motors designed, sold, and used for the purpose of propelling recoverable aero models are not considered to be fireworks. (*See* 527 CMR 16.00, Model Rockets)

(a) Consumer Fireworks. As defined by NFPA 1123.

(b) Display Fireworks. Explosive devices intended for use in outdoor fireworks displays that are presented in conformance with the provisions of 527 CMR 2.08(1). These devices are designed to produce visible or audible effects for entertainment purposes by combustion, deflagration, or detonation. The term "display fireworks," as used in 527 CMR 2.00, includes consumer fireworks to be used in fireworks displays; larger devices of similar construction and chemical composition that are classed as explosives, 1.3G and described as Fireworks, UN0335 by the U.S. Department of Transportation; and other devices that produce visible or audible effects for entertainment purposes that are classed as explosives 1.3G, 1.4G or 1.4s and described as Article, Pyrotechnic by the U.S. Department of Transportation.

(c) Special Effects Fireworks. (Pyrotechnic Fireworks) Explosive devices or articles containing any pyrotechnic composition manufactured and assembled, designed, intended for use discharge in conformance with the provisions of 527 CMR 2.08(2), in connection with television, theater, motion picture productions, or demonstration which may or may not be presented before live audiences, and any other articles containing any pyrotechnic composition used for education, recreation or entertainment purposes which may or may not be presented before a live audience.

(d) Novelties and Trick Noisemakers. Small devices containing limited amounts of pyrotechnic explosive or composition that produce a visible or audible effect.

Exception No.1: Toy caps for use in toy pistols, toy canes or toy guns, and novelties and trick noisemakers as enumerated in Appendix E of NFPA 1123 are not considered to be fireworks.

Fireworks Display. A presentation of fireworks for a public or private gathering.

(a) Fireworks Display Outdoors. Any fireworks display other than a Special Effect or Pyrotechnics Display before a Proximate Audience that is operated and controlled by a Competent Operator.

(b) Fireworks Display Marine. Any display which is discharged from the surface of any waters of the commonwealth and is operated and controlled by a Competent Operator.

2.03: continued

(c) Special Effect or Pyrotechnic Display Before a Proximate Audience. A visible or audible effect for demonstration or entertainment purposes which is operated and controlled by a Competent Operator. Frequently an illusion; that is, something that appears to be other than what it really is. For example, smoke may be created to give an audience the impression of fog being present. Or a puff of smoke, a flash of light, and a loud sound may be produced to give an audience the impression that a cannon has fired, when in reality the cannon has not been fired.

(d) Supervised Display of Fireworks. Any display of fireworks other than a Special Effect or Pyrotechnics Display before a Proximate Audience. Sometimes referred to as a Permitted Display, Outdoor Display, Marine Display or Barge Display, that is operated and controlled by a Competent Operator.

Fireworks Users Certificate, a license granted by the Marshal under provisions of 527 CMR 2.04(2), which allows a person or firm to use fireworks.

Firing System. The source of ignition for fireworks pyrotechnic special effects devices. For an electrical system, it is the source of the electric current used to ignite electric matches or other devices. Generally, the electrical firing system will have components, such as a primary key switch, test circuits, warning indicators, cables, isolation transformers, and switches to control the routing of the current to various pyrotechnic devices.

(a) Display, Manually Fired. Any display in which multiple shot mortars are reloaded and re-fired by hand-held torch, flare, or similar device.

(b) Display, Remote Electrical. Any display in which single shot mortars containing one shell per display are used and initiated remotely by means of an approved electrical firing board.

Fixed Production. Any production repeatedly performed in only one geographic location.

Flare. A pyrotechnic device designed to produce a single source of intense light for a defined period of time.

Fusee. A highway distress flare, sometimes used to ignite fireworks at outdoor fireworks displays.

Ground Display Piece. A pyrotechnic device that functions on the ground (as opposed to an aerial shell that functions in the air). Typical ground display pieces include fountains, roman candles, wheels, and “set pieces.”

Harbor Masters. An individual appointed under the provisions of M.G.L. c. 102, § 19.

Hazardous Debris. Any debris produced or expelled by the functioning of a pyrotechnic device that is capable of causing personal injury or unpredicted property damage. This includes, but is not limited to, hot sparks, heavy casing fragments, unignited components. Confetti, lightweight foam pieces, feathers, novelties, etc. are not to be construed as hazardous debris.

Head of the Fire Department. An individual as defined in M.G.L. c. 148, § 1.

Highway. Any way as defined by M.G.L. c. 90, § 1.

Igniter. An electrical, chemical, or mechanical device normally used to fire pyrotechnics.

Ingredient. A chemical used to create a pyrotechnic material. Such a chemical is not a pyrotechnic by itself.

Intrastate. Commerce within the state, as opposed to commerce between the states (i.e. interstate).

Lance. A thin cardboard tube packed with color-producing pyrotechnic composition used to construct ground display pieces. Lances are mounted on a frame and fused so that ignition of all tubes is nearly simultaneous.

2.03: continued

Lift Charge. That composition in an aerial shell that propels (lifts) the shell into the air when ignited. It usually consists of a black powder charge ignited by a quick match fuse. (A time delay fuse then ignites the main part of the shell, producing the desired effect.)

Magazine. Any building, structure, or container used exclusively for the storage of explosive materials that meets the requirements of 527 CMR 2.07.

Manual Ignition. A technique used to ignite fireworks or special effects mixes using a hand-held ignition source such as a fusee or portfire.

Manufacture. The preparation of fireworks mixes and the loading and assembly of all fireworks.
Exception: The preparation of pyrotechnic devices for immediate use on a display site by qualified personnel who hold a Certificate of Competency (fireworks) where such manufacture is otherwise legal.

Manufacturing Building. Means any building or other structure (except magazines) in which the manufacture of fireworks or any processing involving the manufacture of fireworks material is carried on, and any building where fireworks materials are used as a component part or ingredient in the manufacture of any explosive article or device.

Manufacturer of Fireworks. Any person licensed in accordance with 27 CFR Part 55, and engaged in the business of manufacturing fireworks for the purpose of sale or distribution.
Exception No. 1: In the case of binary systems, the supplier of pre-weighted or pre-measured ingredients, not the person mixing the ingredients, is considered the manufacturer of any pyrotechnic materials created from binary components.
Exception No. 2: The person loading binary materials into devices supplied by the manufacturer of binary systems shall not be considered a manufacturer when such loading is preformed according to the instructions of the manufacturer.
NOTE: A federal manufacturer license is required when a binary system is used and the components are mixed in the course of a trade or business to create an explosive material.

Marshal. The State Fire Marshal as defined in M.G.L. c. 149, § 1.

Massachusetts Requirement. A requirement of 527 CMR 2.00. When specifically stated within 527 CMR 2.00 it is a requirement of 527 CMR 2.00 and shall prevail over the provisions of any adopted standard.

Mine. A device designed to project numerous stars and other effects, such as whistles and firecrackers, into the air from a mortar. A black powder charge ignites the contents of the mine, propelling its contents into the air to altitudes that usually are lower than those reached by aerial shells.

Mortar. A tube or a pot-like device used to direct and control the effect of the pyrotechnic material. Mortars also prevent debris from falling into unsafe areas. Mortars shall be sufficient in strength to withstand the firing of the pyrotechnic device or material without the mortar becoming distorted.
(a) Mortars, Finale. Any single shot mortars which are fired either manually or electrically, normally in a barrage effect at the conclusion of the display.
(b) Mortars, Multiple Shot. Any mortars which are reloaded and refired during a display such as in a manually fired display.
(c) Mortars, Rack Mounted (Flights). Any single shot mortars used during a display which are used to fire a limited number of shells in sequence and which otherwise meet the construction requirements of 527 CMR 2.08(5).
(d) Mortars, Single Shot. Any mortars which are loaded with only one shell and fired only once during a display such as in a remote electrical display.

Mortar Rack. A strong frame containing mortars. Such racks most often are used for barrages and finales and in electrically ignited displays.

2.03: continued

Mortar Trough. Aboveground structures filled with sand or similar material into which mortars are positioned ready for use in a fireworks display. Also referred to as a blast box or volley box.

NFPA. The National Fire Protection Association.

NFPA 70. 527 CMR 12.00.

Operator.

(a) *See* Competent Operator.

(b) Special Effects Operator. (Pyrotechnic Operator) A person who holds a Certificate of Competency (Special Effects) with responsibility for pyrotechnic safety and who controls, initiates, or otherwise creates special effects. The operator is also responsible for storing, setting up, and removing pyrotechnic materials or devices after a performance.

Performer. Any person active in the performance during which a pyrotechnic special effect occurs who is not audience or support personnel. Among others, performers can include, but are not limited to, actors, singers, musicians, acrobats, and the like.

Person. Any natural person, individual, firm, co-partnership, corporation, company, association, or joint-stock association, including any trustee, receiver, assignee, or personal representative thereof.

Permit to Display Fireworks. A permit issued, in writing on forms furnished by the Department of Fire Services, to a Competent Operator by the head of the fire department or the Marshal to conduct a Supervised Fireworks Display or Special Effects before a Proximate Audience.

Proscenium Wall. A fire resistive wall which separates a stage or enclosed platform from the public or spectator area of an auditorium or theater as defined in 780 CMR 6: *Types of Construction* (The State Building Code).

Production. All the performances of a musical, dramatic, operatic, or other series of shows. There are two types of productions: fixed and touring.

Proximate Audience. An audience closer to pyrotechnic devices than allowed by 527 CMR 2.08. Fireworks Display Outdoors.

Public Conveyance. Any railroad car, street car, ferry, cab, bus, airplane, or other vehicle that carries passengers for hire.

Pyrotechnic Composition. A chemical mixture that, upon burning, produces visible, brilliant displays, bright lights, or sounds.

Pyrotechnic Device. Any device containing pyrotechnic materials and capable of producing a special effect.

Pyrotechnic Special Effect. A fireworks special effect created through the use of pyrotechnic materials and devices. *See* Fireworks Display, Fireworks.

Pyrotechnics. The science of controlled exothermic chemical reactions that are timed to create the effects of light, heat, gas, sound, dispersion of aerosols, emission of visible electromagnetic radiation, or a combination of these effects to provide the maximum effect from the least volume.

Pyrotechnical Material (Pyrotechnic Special Effects Material). A chemical mixture used in the entertainment industry to produce visible and or audible effects of combustion, deflagration, or detonation. Such a chemical mixture predominantly consists of solids capable of producing a controlled, self-sustaining, and self-contained exothermic chemical reaction that results in heat, gas, sound, light or a combination of these effects. The chemical reaction functions without external oxygen.

2.03: continued

Quick Match. A black match that is encased in a loose-fitting sheath. While exposed black match burns slowly, quick match propagates flame extremely rapidly, almost instantaneously. Quick match is used in fuses for aerial shells and for simultaneous ignition of a number of pyrotechnic devices, such as lances in a ground display piece.

Railway. Any steam, electric, diesel-electric, or other railroad or railway which has a particular line or branch in the vicinity of a pyrotechnics manufacturing or storage facility, or in the vicinity of an outdoor fireworks display.

Ready Box. A storage container for aerial fireworks such as mines, comets, and shells at the site of a fireworks display.

Rocket. A pyrotechnic device that moves by the ejection of matter produced by the internal combustion of propellants.

Salute. A display fireworks item that is designed to produce a loud report.

Salute Powder. A pyrotechnic composition that makes a loud report when ignited and constitutes the sole pyrotechnic effect of a salute.

Shall. Indicates a mandatory requirement.

Shooter. A member of the fireworks display crew (either the operator or an assistant) who performs the actual ignition of the fireworks, either by manual or electrical means.

Special Effects Fireworks. *See* Fireworks, Display Fireworks.

Sponsor. The organization (person, group, or government agency) that arranges with a duly authorized fireworks supplier for its services in presenting a fireworks display or in providing fireworks for use in a display.

Spotter. A member of the fireworks display crew (either the operator or an assistant) who observes the firing and bursting of aerial shells and other display fireworks for the purpose of detecting proper mortar angling, noting the occurrence of duds, and observing for other potentially hazardous situations.

Stage. A partially enclosed portion of an assembly building or outdoor platform which is designed or used for the presentation of displays, demonstrations, or other entertainment wherein scenery, drops, or other effects may be installed or used, and where the distance between the top of the proscenium opening and the ceiling above the stage is more than five feet.

Stars. Small masses of pyrotechnic compounds that are projected from aerial shells, mines, or roman candles. Stars burn while in the air, producing color or streamer effects.

Structure. A combination of materials assembled at a fixed location to give support or shelter, such as a building.

Supervised Fireworks Display. *See* Fireworks Display.

Support Personnel. Any person who is not a performer or member or the audience. Among others, support personnel include the display crew of any production, stage hands, property masters, security guards, fire watch officers, janitors, or any other employee.

Touring Production. Any production performed in more than one geographic location.

Trough. *See* Mortar Trough.

Wheel. An effect that rotates on a central axis consisting of multiple gerbs or drivers attached to a framework.

2.04: Certificates of Competency and Permits for Supervised Displays of Fireworks

(1) Certificate of Competency (Fireworks Display): No person shall conduct a Fireworks Display unless they possess a Certificate of Competency (Fireworks Display) granted by the Marshal.

(a) any person desiring a Certificate of Competency shall make application in writing to the Marshal, be 21 years of age or older, and shall submit to such examination and test as the Marshal shall prescribe. Upon payment of the required fee, the certificate, when issued, shall remain in effect for a period of two years unless suspended or revoked by the Marshal

1. The applicant shall pass a comprehensive written examination covering state laws pertaining to the display of fireworks and 527 CMR 2.00.

2. The applicant shall provide evidence of active employment for a period of three years, on the crew for professional fireworks displays, to encompass a minimum of ten displays.

3. The applicant shall have at least two letters of reference from other licensed pyrotechnic operators within the state. At the option of the Marshal, an alternate requirement can be substituted.

4. The applicant shall provide evidence of having satisfactorily completed recognized fireworks safety course, approved by the Marshal, during the past 12 months.

(b) The renewal of a Certificate of Competency (Fireworks Display) shall require:

1. Proof of actively participating in at least two fireworks displays during the prior two years.

2. The applicant shall provide evidence of having satisfactorily completed recognized fireworks safety course, approved by the Marshal, during the past 12 months.

3. A notarized statement attesting the person or firm understands the contents of 527 CMR 2.00 and M.G.L. c.148. The statement shall be made part of the application.

(2) Fireworks Users Certificate. No person or firm shall use fireworks, on or after June 1, 20021 unless they possess a Fireworks Users Certificate granted by the Marshal.

(a) Application for a Fireworks Users Certificate shall be made to the Marshal and shall include the following:

1. Evidence of a valid bond in accordance with M.G.L. c. 148, §42.

2. A notarized statement indicating that fireworks materials shall be transported, stored and handled or used in accordance with 527 CMR 2.00.

3. A notarized statement attesting the person or firm understands the contents of 527 CMR 2.00 and M.G.L. c. 148. The statement shall be part of the application.

(b) The Fireworks Users Certificate shall expire upon the expiration of the bond. The Fireworks Users Certificate may be revoked by the Marshal for failure by the holder of the Users Certificate or his agents to comply with the terms of the Users Certificate or any provision of 527 CMR 2.00, or M.G.L. c. 148.

(3) Permit to Display Fireworks (Supervised Display of Fireworks): No person or firm shall detonate or use fireworks unless they possess a Permit to Display Fireworks obtained from the head of the fire department in the city or town where the Fireworks are to be displayed, or the Marshal in all other jurisdictions.

(a) Application for a Permit to Display Fireworks shall be made by a competent operator(s) and shall be in writing on forms furnished by the Department of Fire Services.

(b) Application shall be made in writing to the head of the fire department in the city or town where the Fireworks are to be displayed, or the Marshal in all other jurisdictions, at least 15 days in advance of the display.

(c) Such application shall set forth:

1. The name, address, and phone number of the person, group, or organization sponsoring the fireworks display, hereinafter known as the sponsor.

2. The date and time of day at which the fireworks display is to be held, with a proposed rain/wind date and time in the event the display is postponed.

3. The exact address of the display.

4. A diagram of the site on which the display is to be held showing the point(s) at which the fireworks are to be discharged, the location of the audience, as applicable, all buildings, highways and other lines of communication, the lines behind which the audience is to be restrained or separated, and the location of other possible overhead obstructions such as nearby trees, telephone or telegraph lines.

5. The name, address, and phone number of the supplier of the fireworks to the operator, if different than that of the operator.
6. The name and home address of the competent operator who is to be responsible for the actual discharge of the fireworks constituting the display. In the event that the above named operator is unable to be present, an approved competent operator may be substituted. The head of the fire department shall notify the Marshal of such substitution within two working days following the display.
7. The approximate number and description of the fireworks to be discharged, the number and diameter of the largest shells, and whether manually or electrically fired.
8. The manner and place of storage of such fireworks prior to delivery to the fireworks display site.
9. Upon receipt of such application, the head of the fire department shall make or cause to be made an investigation of the pertinent facts set forth in the application and a physical inspection of the display grounds for the purpose of determining compliance with the provisions of 527 CMR 2.00. Upon completion of such investigation and inspection but no later than five days after receipt of said application, the head of the fire department shall transmit one copy of said application to the Marshal and one copy to the applicant with his endorsement thereon in compliance with provisions of law, or his reason or reasons for withholding such endorsement

(d) Said Permit to Display Fireworks Shall not be issued until the applicant (person):
1. Exhibits a valid "Certificate of Competency (Fireworks Display)". The holder of the certificate shall be of such character acceptable to the head of the fire department in the city or town where the fireworks are to be displayed, or the Marshal in all other jurisdictions or their designees.
2. Provides a complete written application particularly describing the operation of the display, the material to be used, the layout, fireworks storage, method and routes of delivery and any further information requested that may assure the display shall not be hazardous to property or endanger any person or persons.
3. Provides a copy of a bond running to the state treasurer in accordance with M.G.L. c. 148, § 42.
4. Provides a copy of a valid Fireworks Users Certificate.

(e) A permit to Display Fireworks (Supervised Display of Fireworks) shall list the name of the sponsor and the person holding the Certificate of Competency (Fireworks Display) who shall be responsible for the display.

(f) A valid Permit to Display Fireworks (Supervised Display of Fireworks) and a Certificate of Competency (Fireworks Display) shall be in possession of the operator at the display site and shall be produced for inspection, in hand, when requested by the head of the fire department, the Marshal, or their designees.

(g) The head of the fire department or the Marshal may restrict the terms and conditions of a Permit to Display Fireworks (Supervised Display of Fireworks) if hazards to the safety of the public, not covered by 527 CMR 2.00 are identified, reduced to writing and made a part of the permit.

(h) A Permit to Display Fireworks (Supervised Display of Fireworks) may be suspended or revoked by the head of the fire department or the Marshal or their designees for any violation of 527 CMR 2.00, or M.G.L. c. 148.

2.05: Manufacture of Fireworks

(1) NFPA No. 1124 Standard Incorporated by Reference.

(2) Massachusetts Requirements. 527 CMR 2.05(3) through (5) are requirements in addition to the incorporated standards.

(3) No person shall manufacture fireworks except in accordance with 527 CMR 2.00. The manufacture of any fireworks, as defined in 527 CMR 2.03, shall be prohibited unless it is authorized by federal license, or permit, and a license issued by the local licensing authority and a permit issued by the Marshal and is conducted in accordance with 527 CMR 2.00.

(a) An application for the permit to manufacture fireworks, as required by M.G.L. c.148, § 13, shall be accompanied by an attested or photostatic copy of the license granted by the local licensing authorities under M.G.L. c. 148, § 12, and by a plan drawn to scale showing the arrangement of the various buildings and magazines of the manufactory and the egress therefrom, their relative location to other buildings and property lines, shall clearly indicate:

1. The location of the manufactory.
2. The name of the owner and /or occupant.
3. The kind and maximum quantities of the explosives, raw materials and finished products, and the manner in which they are to be kept or stored.
4. The nature of the work to be carried on in each building.

(b) Licenses or permits shall not be assigned or transferred.

(c) The issuing authority shall be notified immediately of any change of business address.

(4) A fire safety analysis shall be required. A registered fire protection engineer shall conduct such analysis.

(5) The Marshal reserves the right to set additional restrictions and requirements as a condition of the permit to manufacture fireworks.

2.06: Transportation of Fireworks

(1) NFPA Standards No. 1123 and 1124 Incorporated by Reference.

(2) Massachusetts Requirements. 527 CMR 2.06(3) through (4) are requirements in addition to the incorporated standards.

(3) Permit Requirements. A permit shall be required for the transportation of fireworks or pyrotechnic material intrastate. Application for this permit shall be made to the Marshal.

(a) Any vehicle used for the transportation of fireworks shall be so constructed that the fireworks shall be totally enclosed at all times and such enclosure shall be protected by a suitable lock.

(b) Fireworks shall not be carried or transported in or upon a public conveyance or a vehicle carrying passengers for hire

(c) At no time shall any vehicle containing fireworks be left unattended.
Exception: *See* section 5-4.1.3 of NFPA 1124

(d) Every vehicle containing fireworks shall display on both sides and on the front and rear thereof the appropriate DOT hazardous cargo placarding and each vehicle shall bear the owners name on each side thereof.

(e) Each vehicle shall be equipped with at least two 10-BC portable fire extinguishers.

(f) No person shall smoke, carry matches or any other flame producing device, or carry unauthorized firearms or cartridges while transporting fireworks. Road flares for use in manual ignition of fireworks may be carried provided they are properly separated from any fireworks cargo.

(g) Fireworks shall not be transported through any prohibited vehicular tunnel or subway or over any prohibited bridge, roadway, or elevated highway.

(h) No person shall drive, load, or unload a motor vehicle transporting explosive materials in a careless or reckless manner.

(i) No person under the age of 21 shall transport or possess fireworks regulated by 527 CMR 2.00

(j) In the event of a breakdown or collision, the head of the fire department and the police authority having jurisdiction shall be promptly notified.

1. Fireworks shall be transferred from the disabled vehicle to another under the supervision of a person qualified by the owner of the fireworks or at the direction of a police officer, fire officer or the Marshal.
2. Motor vehicles transporting fireworks shall not be towed while containing fireworks unless directed by a police officer, the head of the fire department, the Marshal or his designees.
3. Road Flares shall not be used for traffic warning devices.

(4) Delivery of Fireworks.

(a) Delivery of fireworks shall be made only to authorized persons who are in possession of a valid Certificate of Competency (Fireworks Display) and a Permit to Display Fireworks (Supervised Display of Fireworks).

(b) As soon as the fireworks have been delivered to a display site, they shall not be left unattended, and they shall be kept dry.

(c) Upon delivery of the fireworks to the display site, members of the public, the audience, spectators, and other persons not otherwise authorized by the head of the fire department or the Marshal, shall be kept at a distance not less than those specified in NFPA 1123 Table 3-

1.3. (527 CMR 2.08-1). Minimum Separation Distances Mortars to Spectators for Land or Water Displays.

Exception: Where it is impractical to locate the delivery vehicle within the perimeter of the display site the vehicle shall be parked and secured. The minimum secured radius from any point of transfer of fireworks from the vehicle to the display site shall be 150 feet. Audience members, spectators and the general public shall not be allowed within this area.

2.07: Storage of Fireworks, Pyrotechnic and Explosive Compositions

(1) NFPA No. 1124 Incorporated by Reference

(2) Massachusetts Requirements. 527 CMR 2.07(3) through (4) are requirements in addition to the incorporated standards.

(3) Storage of Fireworks: No person shall keep or store fireworks, pyrotechnics and explosive compositions or materials except in accordance with 527 CMR 2.00. Fireworks, pyrotechnic and explosive compositions, shall be stored in magazines meeting the requirements of NFPA 1124. They shall be so stored at all times.

Exception: During the process of manufacture, packaging, loading or transportation.

(a) All fireworks, pyrotechnics and explosive compositions or materials and devices not stored in magazines shall remain in their prescribed U.S. Department of Transportation containers until it becomes necessary to set them up for a performance. Unless the pyrotechnic special effect devices are secured or inaccessible, they shall be supervised.

Exception: Unless pyrotechnic special effects are located in an inaccessible, secured or supervised location.

(b) All buildings where fireworks are manufactured, kept or stored shall be open to inspection by any officer or inspector of the Office of the State Fire Marshal or the head of the fire department or their designees.

(c) A permit from the head of the fire department or the Marshal shall be required for the storage of explosive material not specifically covered by 527 CMR 2.00.

All such permits for the storage of fireworks shall remain in effect for a period of time as determined by the Marshal or the head of the fire department and may be suspended or revoked for cause by the head of the fire department or the Marshal. Such permits shall be obtained from the head of the fire department in the city or town where the fireworks are to be stored, or the Marshal in all other jurisdictions.

(d) The head of the fire department or the Marshal may authorize, by stating on a permit to Display Fireworks (Supervised Display of Fireworks) the temporary keeping or storing of Fireworks pursuant to the fireworks display authorized by the display permit.

(4) Temporary Storage.

(a) Except as otherwise provided by M.G.L. c. 148, § 40, 527 CMR 2.00 and 527 CMR 13.00. fireworks and pyrotechnic material may be temporarily kept or stored in a building or part thereof in quantities not to exceed 2000 lbs., provided that the building or part thereof is not open to access by the public, and is kept secure from the public, and/or is guarded under such conditions as required by the head of the fire department.

1. Fireworks kept in excess of 2,000 lbs shall be kept or stored in a building located at a distance not less than 1000 feet from any other building under such conditions as required by the head of the fire department.
2. All fireworks kept or stored in a building shall be kept in wooden boxes with tightly closed covers or in approved DOT Shipping containers.

(b) All premises used for keeping or storing of fireworks shall be provided with such fire extinguishing equipment as may be required by the Marshal or head of the fire department.

(c) No smoking shall be allowed about the premises where fireworks are kept or stored, and notices to that effect shall be conspicuously posted on the premises.

(d) Ready boxes may be utilized during a fireworks display provided that such ready boxes comply with the provisions of 527 CMR 2.08(3)(g)(3).

2.08: Supervised Display of Fireworks Outdoors

(1) NFPA Standard No.1123 Incorporated by Reference.

(2) Massachusetts Requirements. 527 CMR 2.08(3) through (8) are requirements in addition to the incorporated standards. The appendix in NFPA 1123 shall be a requirement of 527 CMR 2.08.

(3) 527 CMR 2.08 shall specifically apply to fireworks displays outdoors. Any fireworks display that does not meet the requirements of a proximate audience shall be considered a fireworks display outdoors.

(a) Before the performance of any fireworks display outdoors in which fireworks are to be used a Permit to Display fireworks, as required by 527 CMR 2.04(3), shall be obtained. The permit applicant shall submit a plan for the use of fireworks to the head of the fire department. After a permit has been granted, the permittee shall keep the plan available at the site for inspectors or other designated agents of the head of the fire department or the Marshal. Any performance adding fireworks different from the performance described in the permittee's plan shall require approval by the head of the fire department.

(b) The audience at a supervised display of fireworks shall be restrained behind a suitable barrier such as snow fencing or its equivalent. Material of substantial strength, uniformly supported and providing an uninterrupted barrier both vertically and horizontally and of a height of no less than 40 inches shall be accepted as an equivalent. Such barrier shall clearly define the restricted discharge area. This restricted area shall be defined based on the minimum separation distances specified by NFPA 1123 Table 3-1.3. (527 CMR 2.08 Table 2.08-1, 2.08-1.2, 2.08-1.3)

(c) Natural barriers such as restrictive terrain, or bodies of water, may be utilized in conjunction with the requirements set forth in 527 CMR 2.08 (3)(b), provided that prior approval has been obtained from the Marshal.

(d) Fireworks displays shall not be held during storms or inclement weather, when such weather conditions will interfere with the safe operation or discharge of the display. Fireworks displays shall not be held when the wind velocity exceeds 20 miles per hour at ground level. The operator shall have available for use at all times a portable anemometor or similar device for measuring wind velocity. Any supervised display of fireworks shall be stopped immediately in the event that upper level wind conditions cause the fall out area to change and pose a threat to public safety or property. A test shot shall be provided to check for high level winds at the request of the head of the fire department or the Marshal.

(e) It shall be the responsibility of the competent operator to determine that the area in which the display is to be discharged is safe and that 527 CMR 2.00 is complied with in all respects. The competent operator shall be responsible for all notifications to the F.A.A. or U.S. Coast Guard, or any other governmental agency with jurisdiction. The competent operator, the Marshal, or the head of the fire department may order the postponement of the display for any violation of 527 CMR 2.00.

(f) Support personnel and assistants shall operate under the direct supervision of a competent operator and shall be a minimum of 18 years of age.

(g) It shall be the responsibility of a competent operator to insure that a thorough search of the display area is made for any unignited fireworks or remnants thereof containing explosives. Such search shall be conducted forthwith and at the first available daylight following the display. Upon completion of the search, a competent operator shall report all findings to the head of the fire department in the municipality where the display was held. It shall be the responsibility of a competent operator to dispose of any such items found.

(h) The head of the fire department shall designate the location and the type of fire extinguishing equipment as may be required.

(i) The sponsor shall be responsible for the detailing of one or members of the fire department as may be required by the head of the fire department. They shall be on duty from the time the fireworks are delivered to the site until the termination of the display and removal of all fireworks and debris from the site. For the purposes of 527 CMR 2.00 the word "debris" shall include any unignited fireworks or remnants thereof containing explosives.

2.08: continued

(j) During a fireworks display, all manually fired shells shall be stored and drawn as needed from suitable wooden supply boxes kept at minimum distance of twenty five feet upwind from the nearest launch mortars used in the display. All such boxes shall be provided with access covers, and the boxes shall be so positioned that they will open from the side most remote from the launch mortar then being used. All such supply boxes shall be further provided with a tarpaulin or other fire resistant covering.

(k) Any explosion, fire or other accident occurring in connection with the keeping, storage, manufacture, handling, transportation, supervised display or other disposition of fireworks causing loss of life or injury to any person or damage to property shall be reported by the competent operator immediately to the Marshal, giving a detailed account of same and confirmed in writing.

Table 2.08 - 1

NFPA 1123 Table 3-1.3 Distances for Outdoor Fireworks Display Sites
Minimum separation distances Mortars to Spectators for Land or Water Displays

Mortar Size[1](in.)	Minimum Secured Diameter of Site[2]	Minimum Distance to Spectators for Vertical Mortars[3] (ft)	Minimum Distance to Spectators for Angled Mortars[4] _ Offset (ft)	Mortars to Distance to Special Hazards[5] (ft)
<3	280	140	95	280
3	420	210	140	420
4	560	280	190	560
5	700	350	230	700
6	840	420	280	840
7	980	490	320	980
8	1120	560	370	1120
10	1400	700	460	1400
12	1680	840	560	1680

(Note: The footnotes listed below refer to sections of NFPA 1123.)

1. *See* 2-1.1. 2) *See* 3-1.3. 3) *See* 3-2.3.

4. *See* 3-2.3.1. Note that for angled mortars, the minimum secured diameter of the display site does not change. Only the location of the mortars within the secured area changes when the mortars are angled.

5. *See* 3-1.3.2 Note that this is only the distance to the special hazards. The minimum secured diameter of the display site does not change.

6. For multiple shot mortar devices using mortars less than 3 inches in diameter such as cakes, repeaters etc. the minimum secured diameter of the display site and minimum distance to spectators and special hazards shall be equal to 3 inch mortars.

2.08: continued

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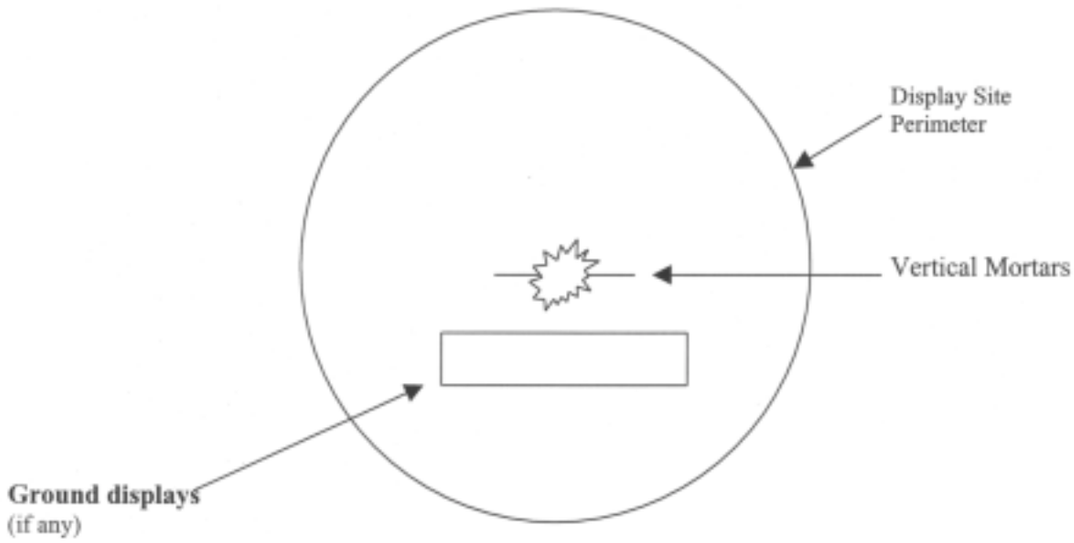
Table 2.08 – 1.2

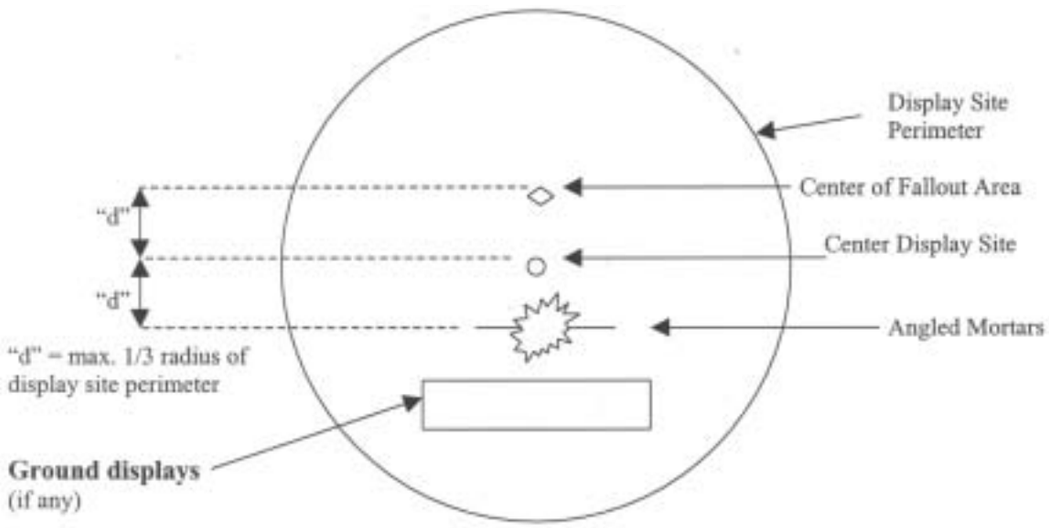
NFPA 1123 Figure A-3.2.3 Typical Layout for a display site with vertical mortars



Spectator Viewing Area

Table 2.08 – 1.3

NFPA 1123 Figure A-3-2.3.1 Typical layout for a display using angled mortars
The distance “d” shall be at least 1/6 but not more than _ the radius of the circle indicating the minimum distance to the secured boundary.



Spectator Viewing Area

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(4) Fireworks Launch Mortars.

(a) No fireworks display shall include mortars or shells in excess of 12 inches in diameter unless the competent operator shall have obtained prior approval from the Marshal.

2.08: continued

(b) Multiple shot mortars shall be constructed of non – fragmentary steel, or other approved material not less than ¼ inch thickness, and shall be capped at the base by a welded cap of like material. No wood plug base ends shall be permitted.

1. Multiple shot mortars up to 8 inches in diameter shall be buried in a trench not less than 18 inches apart to a depth of not less than ¾ of their length, but in no case shall the protrusion above the ground be greater than eight inches. The trench shall be provided with wooden base planking at least four inches thick and shall be equivalent in width to the largest diameter mortar used.
2. The portion of the mortar tube extending above ground shall be supported with railroad ties or their equivalent placed on both sides of the tubes and shall be firmly secured together by wood or metal connecting straps. All remaining space between mortars shall be filled with firmly tamped sand or earth.
3. In display locations where ground excavation or "trenching" is not feasible, the head of the fire department may allow multiple shot mortars up to ten inches in diameter to be buried to ¾ of their length in sturdy wooden boxes (volley or blast box) or partitions at least two feet wide by three feet in height, filled with clean sand and provided with 18 inches spacing between mortars. Sturdy 55 gallon drums filled with clean sand may also be used with no more than two mortars in each drum.

(c) Single shot or "finale" mortars may be constructed of steel with welded seams, high density polyethylene (HDPE), fiberglass reinforced epoxy, or of convolute or spiral paper in accordance with table 2.08-2.(A) through (E). Wooden plug base ends shall be permitted for single shot or "finale" mortars, except fiberglass reinforced epoxy mortars. Fiberglass reinforced epoxy mortars shall have epoxy welded bases two inches thick.

TABLE 2.08 - 2

Table 2.08-2 A
Minimum Mortar Wall Thickness (in.) for Steel Mortars[1]

Mortar ID (in.)	Spherical	Cylindrical Single Break	Cylindrical Multi-Break[2]
3	0.04	0.11	0.21
4	0.05	0.12	0.23
5	0.06	0.13	0.25
6	0.07	0.14	0.27
8	0.09	0.16	0.31
10	0.11	0.18	0.35
12	0.13	0.20	0.39

For SI units: 1 in. = 25.4 mm.
1. The tensile strength of steel pipe should be at least 40,000 psi (275,800 kPa).
2. Wall thicknesses are those of American National Standard ANSI/ASME B 36.10M, Welded and Seamless Wrought Steel Pipe, 1985. (Schedule 40 wrought pipe).

Table 2.08-2 B
Minimum Mortar wall Thickness (in.) for Paper Mortars (Convolute or Spiral)[1]

Mortar ID (in.)	Spherical	Cylindrical Single Break	Cylindrical Two Break
3	0.25	0.25	0.37
4	0.25	0.33	0.50
5	0.31	0.42	0.62
6	0.37	0.50	0.75
8	0.50	0.62	*See* note # 2
10	0.62	*See* note # 2	*See* note # 2
12	0.75	*See* note # 2	*See* note # 2

For SI units: 1 in. = 25.4 mm.
1. The cross-grain tensile strength of the paper should be at least 2300 psi (16,000 kPa).
2. Not permitted

2.08: continued

Table 2.08-2 C
Minimum Mortar Wall thickness (in.) for High density Polyethylene Mortars[1]

Mortar ID (in.)	Spherical	Cylindrical Single Break	Cylindrical Two Break
3	0.15	0.20	*See* note # 2
4	0.20	0.26	*See* note # 2
5	0.25	0.25	*See* note # 2
6	0.30	0.30	*See* note # 2

For SI units: 1 in. = 25.4 mm.
1. The tensile strength of plastic should be at least 3500 psi (24,000 kPa).
2. Not permitted

Table 2.08-2 C -1
Minimum Mortar Wall thickness (in.) for High density Polyethylene Mortars[1]
(*Unique to Massachusetts and not part of NFPA)*

Mortar ID (in.)	Spherical	Cylindrical Single Break	Cylindrical Two Break
8	0.332	0.332	*See* note # 2
10	0.331	0.331	*See* note # 2
12	0.392	0.392	*See* note # 2

For SI units: 1 in. = 25.4 mm.
1. The tensile strength of plastic should be at least 3500 psi (24,000 kPa).
2. Not permitted

Table 2.08 – 2 D
Minimum Mortar Wall Thickness (In.) for Fiberglass Reinforced Epoxy (With epoxy welded 2" bases)[1]

Mortar ID (in.)	Spherical	Cylindrical Single Break	Cylindrical Two Break
3	0.11	0.11	*See* note # 2
4	0.11	0.11	*See* note # 2
5	0.11	0.11	*See* note # 2
6	0.11	0.11	*See* note # 2
8	0.25	0.25	*See* note # 2
10	0.25	0.25	*See* note # 2
12	0.375	0.375	*See* note # 2

1. Tensile strength of Fiberglass Reinforced Epoxy should be at least 11,000 psi
2. Not permitted

Table 2.08 –2 E
Minimum Inside Mortar Length Inches

Mortar ID (in.)	Single Break	Double Break	Up to 4 - Break
3	15	18	21
4	20	23	27
5	24	28	32
6	28	32	37
8	34	40	46
10	40	46	54
12	46	52	62

For S1 units: 1 in. = 25.4 mm

(d) Single shot aluminum mortars shall be limited to four inches in diameter.
(e) Each finale mortar shall be buried in a trench at least three quarters of its length, but in no case shall the protrusion aboveground exceed ten inches. Burial shall be in trench only. Finale mortars shall not be buried in rows in an open pit like excavation.
(f) The time rack or fence, so called, used for tying the leaders of each shell shall be so constructed that the fence shall at no time exceed the height of the finale mortar opening.

2.08: continued

(g) In display locations where ground excavation or "trenching" is not feasible, the head of the fire department may allow single shot mortars up to eight inches in diameter to be buried to _ of their length in sturdy boxes at least two feet wide , filled with clean sand, and provided with spacing between mortars equal to at least ½ the diameter of any adjacent mortar, or single shot mortars up to 12 inches in diameter and buried to _ of their length in separate sand filled boxes or drums.

(h) Multiple shot mortar devices using mortars less than 3 inches in diameter such as cakes, repeaters, etc. shall be buried 7/8 their length in a trench, mortar trough, or sturdy drum filled with clean sand. The spacing between the outside of the cake, repeater or device and the mortar trough or drum shall be equal to at least ½ the width and length of the cake, repeater or device. The head of the fire department may allow for an equivalent alternative, such as sand bags, provided the same degree of protection is provided.

(5) Mortar Racks.

(a) In display locations where ground excavation or "trenching" is not feasible, the head of the fire department may allow single shot or "finale" mortars up to six inches in diameter to be rack-mounted to adequately constructed wooden racks.

(b) Spacing between mortars in a rack shall be at least ½ the diameter of the adjacent mortar.

(c) Each mortar shall be securely fastened to its rack, and each rack shall be securely supported at each end.

(d) Parallel racks or rows of racks shall be no less than two feet apart

1. Exception # 1: For electrically fired displays parallel racks or rows of racks shall be separated by a minimum distance not less than twice the inside diameter of the largest mortar in an adjacent rack.
2. Exception # 2: For manually fired "Finale" or "barrage" effect displays that utilize chain fusing, where the largest mortars are limited to four inches in diameter, parallel racks or rows of racks shall be separated by a minimum distance of not less than twice the inside diameter of the largest mortar in an adjacent rack.

(6) Dense Pack Portable Firing Trailers.

(a) Dense pack portable firing trailers shall be approved by the Marshal, subject to restrictions and inspections as established by the Marshal.

(b) Fireworks displays that utilize dense pack portable firing trailers shall be electrically fired.

(c) All dense pack portable firing trailers shall be accompanied by a permit issued by the Marshal.

(7) Remote Electrical Displays.

(a) All electrical firing units shall be of a type approved by the Marshal, and all devices, wiring, connections, etc., shall be adequately maintained and installed in a workman-like manner.

(b) All electrical firing units, other than single circuit hand held units, shall be equipped or retrofitted with a key operated switch or similar device on or before May 1, 2000 in conformance with NFPA 1123 section 5-2.2.

(c) All firing devices or control panels shall be provided with shunting across the firing leads to insure against accidental discharge. The control firing leads shall be shunted before the attachment of the electrical matches and shall remain shunted until the actual time of the display.

(d) All firing units shall be provided with an emergency electrical disconnect which will de-energize the entire system in the event of an emergency.

(e) All electrical matches shall be pre-attached at the factory and remain shunted until the complete device is loaded into the firing position and ready to be wired in proper sequence into the firing circuit.

(f) All wiring and firing system setups shall be done under the direct control of the competent operator who shall also insure that the firing device or control panel is properly safeguarded.

(8) Marine Displays.

(a) 527 CMR 2.08(8) shall specifically apply to the use and display of fireworks, at a Marine Display.

(b) Before the performance of any Marine Display, a permit to Display Fireworks, as required by 527 CMR 2.04(3), shall be obtained. The permit applicant shall submit a plan describing for the use of fireworks to the head of the fire department. After a permit has been granted, the permittee shall keep the plan available at the site for inspectors or other designated agents of the head of the fire department or the Marshal. Any display adding fireworks different from the display described in the permittee's plan shall require approval by the head of the fire department.

(c) All barges and vessels used as launch platforms for the supervised display of fireworks shall be open to inspection by the Marshal, head of the fire department, harbormaster having jurisdiction, or to any person delegated by the aforementioned.

(d) All such barges or vessels shall be of sturdy, seaworthy construction, properly maintained, and provided with adequate towing, anchor, and mooring lines or chains. When a barge is secured at anchorage secondary mooring lines of equal value to the primary mooring lines shall be employed. Use of tugs or other vessels for securing a barge at anchor is forbidden. EXCEPTION: *See* 527 CMR 2.08(8)(a)

(e) No barge or vessel used for the transportation of flammable, combustible or other hazardous material, above or below deck, shall be used unless such flammable, combustible or hazardous material, its residue and vapors have been removed and the barge or vessel is certified to be free of such vapors. This shall be accomplished by the use of a Marine Chemist who shall attest to this fact in writing.

(f) All barges and vessels with decks of wooden construction shall have all exposed decking covered with a minimum of two inches of clean sand.

(g) Any barge or vessel containing fireworks on any waters of the Commonwealth shall have signs affixed midship, visible on both sides thereof, the word "FIREWORKS" in six-inch-high red lettering on a white background. Further, such vessel shall display on a suitable staff an international Code Flag B, Which shall be readily discernible from a distance of not less than 1000 feet by day and shall be properly illuminated at night.

(h) No personnel other than the competent operator (s), or authorized personnel as approved by the head of the fire department, shall be allowed on such barge during the display. A crew list indicating the full name and home addresses of each individual, and the purpose for which they shall be employed while aboard the barge shall be submitted to the head of the fire department prior to the display. The barge shall be equipped with a suitable means of shelter so as to provide sufficient protection to prevent debris from falling on the personnel, and shall provide protection from malfunctioning product.

(i) No smoking shall be allowed on any barge or vessel containing fireworks.

(j) Each such barge or vessel shall be equipped with at least two portable fire extinguishers as directed by the head of the fire department, the Marshal or their designees.

(k) All barges and vessels shall be subject to assignment as to cargo loading and display locations by the head of the fire department.

The location for anchoring, or mooring, shall also be approved by the Harbormaster having jurisdiction.

(l) It shall be the responsibility of the competent operator to insure:

1. The display is in conformance with any U.S. Coast Guard standards or requirements and that adequate notice is given to any concerned parties such as local airports, private marinas, etc.
2. That the area on all sides of the barge or vessel is free of all unauthorized personnel, vessels, and water craft. All such personnel and vessels shall be kept at a distance in accordance with Table 2.08 - 1

(m) All fireworks shall be set up and discharged in accordance with 527 CMR 2.00

(n) All marine fireworks displays shall be fired using electrical ignition.

2.09: Theatrical Special Effects or Pyrotechnics Display Before a Proximate Audience

(1) NFPA Standard No. 1126 Incorporated by Reference.

(2) Massachusetts Requirements. 527 CMR 2.09(3) through (16) are requirements in addition to the incorporated standards.

(3) The use of special effects indoors or outdoors shall be permitted provided 527 CMR 2.08 are complied with.

(4) Any person wishing to conduct a display of special effects fireworks shall first make an application for such supervised display as required by 527 CMR 2.05 and shall be further limited as follows:

(a) Every supervised display of "special effects" shall be handled by a competent operator who shall have been approved by the Marshal.

(b) Any person desiring a certificate of competency to conduct a theatrical special effects display shall obtain such certificate by making a special application to the Marshal. Such limited certificate shall not be authorization to conduct a display covered by any other section of 527 CMR 2.00. Likewise, certificates granted to conduct displays covered by other sections of 527 CMR 2.00 shall not be valid under 527 CMR 2.09.

(c) Application for a "limited special effects permit" for the supervised display of theatrical special effects shall be obtained from the head of the fire department. Application for such permit shall be submitted at least 15 days in advance of the date of the display and shall set forth:

1. The date, time, and location of the display.
2. The name, address, and certificate number of the competent operator.
3. The types, amounts, and description of the pyrotechnics to be used, accompanied by appropriate sketches or diagrams showing the exact location of each during the display.
4. The location, manner of storage, type of storage facility, and total amounts to be stored.
5. Evidence of a valid certificate of insurance for liability to the city or town , in an amount approved by the head of the fire department.

(d) The display shall be under the supervision of an individual competent operator holding a Certificate of Competency for Special Effects issued by the Marshal, and valid for two years unless suspended or revoked by the Marshal.

(5) The applicant for the limited special effects permit shall demonstrate the complete fireworks display in the presence of the head of the fire department or his designees at least four hours before the performance at the proposed location of the performance and shall give the head of the fire department at least four days' notice of such demonstration. The head of the fire department may waive 527 CMR 2.09 if he or his designee has witnessed essentially the same display at a similar separate location.

(6) Denial of the Application. Denial of the application for the use of special effects fireworks for just cause shall be determined by the head of fire department within a maximum of 24 hours after witnessing the preliminary display, and the applicant shall be so notified in writing within the next 24 hours with the reasons for such denial detailed. The applicant shall then have the right of appeal to the Marshal within 48 hours.

(7) Pyrotechnic Composition or Devices to be Used.

(a) Only approved types and amounts of pyrotechnic compositions and devices as listed on the permit application shall be used.

(b) Pyrotechnic compositions and devices shall be ignited and supervised continuously by the person holding the certificate of competency for the conducting of the display in question.

(8) Approved Pyrotechnic Compositions, Devices, Containers, and Detonating Mechanisms to be Used. Only those pyrotechnic compositions, devices, containers, and detonating devices listed in the application and approved by the Marshal shall be used. All pyrotechnic devices and containers shall be fixed in their detonating positions as approved by the operator. Any device from which residue may be projected shall either be protected by a securely attached metallic screen or be relocated to a point where such residue will not endanger the audience.

2.09: continued

(9) Detonating Mechanisms. The competent operator shall supervise the loading and wiring of each device and all firing shall be done from a central control location affording the operator an unobstructed view of each effect.

(10) Prohibited Special Effects Displays. No bombs, salutes, Roman candles, skyrockets, firecrackers, torpedoes, or similar fireworks shall be used in a special effects display unless previously specifically approved in writing by the Marshal.

(11) Audience Location. Audience location shall be in conformance with NFPA 1126

(12) Suspended Devices. The chemical composition of any suspended special effects shall be such as to self extinguishing at least ten feet above any object below. No such device shall be located above the audience.

Exception: Line or Grid rockets may be allowed with written approval of the head of the fire department provided that they are sturdily constructed and properly secured.

(13) Disposal of Unfired Special Effects Materials. Any special effects materials that remain unfired after the display is concluded shall be immediately disposed of or removed in accordance with NFPA 1126 sec 6-7.

(14) The theatre, auditorium, or similar facility shall certify that the proscenium wall and curtain are in compliance with 780 CMR and that all combustible materials used in sets and scenery have been rendered flame resistant in compliance with 780 CMR.

(15) The Marshal, the head of the fire department, or designee of either, may order the cancellation of any display for violation of any of 527 CMR 2.00.

(16) Storage Storage of special effects fireworks shall be in accordance with NFPA 1126 sec 6-1.3 and 6-1.4.

REGULATORY AUTHORITY

527 CMR 2.00: M.G.L. c. 148, § 10.

NON-TEXT PAGE